Rhodora

JOURNAL OF THE
NEW ENGLAND BOTANICAL CLUB.

Conducted and published for the Club, by
BENJAMIN LINCOLN ROBINSON, Editor-in-chief.
FRANK SHIPLEY COLLINS
MERRITT LYNDON FERNALD } Associate Editors.
HOLLIS WEBSTER
WILLIAM PENN RICH
EDWARD LOTHROP RAND } Publication Committee.

Vol. 16. June, 1914. No. 186.

CONTENTS

William Whitman Bailey. *Walter Deane* 97
Opuntia vulgaris on Cape Cod. *F. S. Collins* . . . 101
Discovery of a long-sought Alga. *R. E. Schuh* . . . 105
Flora of the Boston District,—XIX 106
Original Flora of the Old Colony. *C. H. Knowlton* . . . 113
Narrow-leaved Variety of Salix pyrifolia. *M. L. Fernald* . 116

Boston, Mass.
1052 Exchange Building.

Providence, R. I.
Preston and Rounds Co.

RHODORA.—A monthly journal of botany, devoted primarily to the flora of New England. Price ***$1.50*** per year (domestic and foreign); single copies 15 cents. Prices of Volumes 1 and 2 (1899 and 1900) on application. All remittances by check or draft, except on Boston or New York, must include ten cents additional for cost of collection. Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be gladly received and published to the extent that the limited space of the journal permits. Forms will be closed five weeks in advance of publication. Authors (of more than one page of print) will receive 25 copies of the issue in which their contributions appear. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to
B. L. ROBINSON, 3 Clement Circle, Cambridge, Mass.

Subscriptions, advertisements, and business communications to
W. P. RICH, 300 Massachusetts Avenue, Boston, Mass.

Single copies may be had from
E. L. RAND, Corresponding Sec'y N. E. Botanical Club,
1052 Exchange Building, Boston, Mass.

Entered at Boston, Mass., Post office as Second Class Mail Matter

KEY TO NEW ENGLAND TREES, Wild and Commonly Cultivated, based primarily upon leaf characters, by J. FRANKLIN COLLINS and HOWARD W. PRESTON. Price 40c. net. PRESTON & ROUNDS CO., Providence, R. I.

CARD-INDEX OF NEW GENERA, SPECIES AND VARIETIES OF AMERICAN PLANTS, 1885 TO DATE.

For American taxonomists and all students of American plants the most important supplement to the Index Kewensis, this catalogue in several ways exceeds the latter work in detail, since it lists not merely the flowering plants, but pteridophytes and cellular cryptogams, and includes not merely genera and species, but likewise subspecies, varieties and forms. A work of reference invaluable for larger herbaria, leading libraries, academies of sciences, and other centers of botanical activity. Issued quarterly, at $15.00 per 1000 cards.

GRAY HERBARIUM of Harvard University,
Cambridge, Mass., U. S. A.

CHECK LIST OF GRAY'S MANUAL, 7th EDITION, compiled by M. A. DAY. Leatherette. Pocket size. Invaluable for collector's memoranda and herbarium records. Published and sold by the GRAY HERBARIUM, Cambridge, Mass. Price postpaid 20 cts. each. Ten copies $1.50.

SECOND-HAND BOOKS. Botanical and Entomological. For sale at bargain. List on application with two cent stamp. ELIZABETH F. CURTISS, 4853 Kimbark Avenue, Chicago.

Advertisements of Nurserymen and Dealers in Botanical and other Scientific Publications are inserted in these pages at the following rates per space of 4 in. by 3-4 in. 1 year $4.00, 6 months $2.50.

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 16. June, 1914. No. 186.

WILLIAM WHITMAN BAILEY.

WALTER DEANE.

ONE by one our older botanists are leaving us and their places are being taken by the younger generation in their turn. We miss the familiar faces, the spoken and the written words, and the warm friends who have cheered and encouraged us in our pursuits. But we must rather rejoice than mourn when a life filled with much suffering in the midst of botanical activity has at last been ended and the body is at rest.

William Whitman Bailey died in Providence, Rhode Island, on February 20, 1914, within two days of 71 years of age. He was born at West Point, New York, on February 22, 1843, and was the son of Jacob Whitman Bailey of West Point and Maria Slaughter, daughter of Samuel Slaughter of Culpeper, Virginia, through whom he was connected with many prominent Virginians. He was descended from John Bayley, of Newbury and Salisbury, Massachusetts, who emigrated from Chippenham, England in 1635. His father was born in Ward, now Auburn, Massachusetts, in 1811, and was graduated at West Point in 1832 where, after serving for some years in the First Artillery, he became in 1838 Professor of Chemistry, Mineralogy and Geology. There he remained till his death on February 26, 1857, a man in the very front of American science and a leader in microscopical research. Bailey's great grandfather on his mother's side was Colonel James Slaughter of Virginia who served in the Continental Army.

Young Bailey's early life was spent at West Point. He writes later, "My very earliest memories were associated with the military life at West Point. I never knew any other till I was fourteen years

of age. The daily routine of the Post was familiar to me, the reveille, guard mounting, hour calls, parade, gun fire, drills of all kinds, tattoo and taps. I was acquainted with the minutiae of the Academy, as a child would observe." This, with his short military service mentioned later, accounts for the intense military ardor that he always showed, and his deep love for West Point.

A terrible tragedy came into Bailey's life when he was but nine years of age and he never entirely recovered from its effects. On July 28, 1852, he embarked with his father, mother, and only sister, a young girl of sixteen, on board the Henry Clay, on the Hudson River, near West Point, for Long Island. The weather was bright and warm, and they had proceeded as far as Yonkers when the cry of "Fire!" was heard. Space forbids details. The fire was amidships. The steamer was beached near Yonkers and the passengers forward could escape, but the retreat of Prof. Bailey and his family was cut off. They all finally sprang into the water and in spite of every effort Mrs. Bailey and her daughter were drowned, Professor Bailey and his son were saved. From the shock there received young Bailey's life trembled in the balance for several years, and his whole life and nature were profoundly affected by the calamity. Long after he writes, "After the dread event and consequent shock I never regained my original tone." Indeed all the events of his future life were dominated by his weak constitution.

In February, 1857, but a few days before his father's death, he left West Point and went to Providence which was the residence of his uncle and where some of his ancestors had lived for several generations. He entered the University Grammar School and in 1860 became a freshman at Brown University in the same city. Having a profound distaste for mathematics and finding great difficulty with the subject he drifted into a special chemical course and left college with his class, but without a degree.

It was during his college career, in 1862, at the time of the Civil War that he enlisted as a private in the Tenth Regiment of Rhode Island Volunteers for three months. His health broke down under the exposure, and he returned to Providence before the regiment. From time to time after graduation Bailey visited, at Fredericton, New Brunswick, his brother, Professor Loring W. Bailey, who held the chair of Chemistry and Natural Science in the University of New Brunswick in that city, and on several occasions he assumed his

brother's duties, teaching Chemistry, Physiology, and Comparative Anatomy. In 1866 and 1867 he was assistant chemist in the Manchester Print Works, Manchester, New Hampshire, and in the Massachusetts Institute of Technology, in Boston.

Up to this time Bailey did practically no botanical work. While in college he amused himself occasionally with the systematic analysis of simple plants. It was a mere amusement, botany not being taught at that time at Brown University. He says, "While in college and for some years after I regarded chemistry as my ultimate goal." In 1867 he heard of the United States Geological Exploration of the 40th Parallel under Clarence King, and he was informed that a botanist was wanted. He immediately sought the position, and, on writing to Dr. Asa Gray, he received the amusing reply, "Mr. King desires a young man who shall at the same time be an accomplished botanist. As the two things are incompatible I think you'll do as well as another." Bailey accepted the position and from that time devoted himself to botany, never returning to chemistry. He started immediately for his new field of action. Here again he broke down and, in the spring of 1868, Dr. Sereno Watson took his place. In a letter to the writer he says, "I was with the party in Nevada about nine months when my health failed and I resigned. Still for a tyro my work was not so bad. Watson told me that he adopted my sketch of the phytographic regions in his report."

For several years after this he was engaged in various occupations, at one time assistant librarian at the Providence Athenaeum, and again teaching in private schools, and working in the herbarium of Columbia College, New York, with Dr. John Torrey. He also studied and did some teaching in the summer school of botany at Harvard College in 1875, 1876 and 1879, but his botanical career may be said to have begun in 1877 when he started a private class at Brown University. He writes later, "Botany was not taught at all in Brown till I myself introduced it in 1877." This was the first botanical class there, and it was a success. Bailey wrote later, "At the end of the season I was voted thirty dollars, and was tempted to go on by the title of instructor and the advanced pay of fifty dollars for the season of 1878." This was the beginning of a long course of botanical instruction, covering nearly thirty years, for he continued to teach there until his resignation in 1906. He became Professor of Botany in 1881. His college conferred upon him the degree of Ph.B. in 1873

and of A. M. in 1893. In 1900 he received the degree of LL. D. from the University of New Brunswick.

Professor Bailey devoted the best part of his life to botanical work in Brown University. During this period he confined himself to teaching and did not undertake any original scientific work. Vegetable morphology and systematic botany were the subjects to which he devoted himself mainly, and students who have since risen to an honorable position in the botanical world were among his pupils. He also conducted classes outside of his college work, lectured frequently in Providence and elsewhere and contributed articles, botanical and otherwise, to many papers, notably The American Naturalist, Botanical Gazette, Bulletin of the Torrey Botanical Club, New England Journal of Education, Providence Journal, etc. Between 1881 and 1899 Professor Bailey published 'Botanical Collectors' Hand-book' (1881), 'Botanical Note-book' (1894–1897), 'Among Rhode Island Wild Flowers' (1895 and 1896), 'New England Wild Flowers' (1895), and 'Botanizing' (1899). His early experiences at West Point are vividly told in a brochure entitled 'My Boyhood at West Point,' published in 1891, and in a series of seventeen newspaper articles entitled 'Recollections of West Point,' published in 1900, by 'The News of the Highlands,' a local paper of the West Point region.

By nature Bailey had a fine artistic temperament, and the productions from his pen, pencil and brush were always the delight of his friends. Beautiful colored drawings, illustrating plant structure, insect pollination and the like, were used in his class work and his lectures. His poetic nature is shown in the many verses that he wrote both for publication and for his friends, and in 1909 he published a collection of the principal ones. He made staunch friends, and was an unremitting and brilliant correspondent, his letters teeming with wit and showing his wide knowledge of books. At class and society reunions Bailey was always expected to make a speech or read a poem, and these were full of pathos or wit as the occasion required. Yet through all this busy life he was a constant sufferer from spinal and other troubles, and the wonder is that he was enabled to carry on his work as he did.

He was ever fond of visiting West Point and many were the weeks that he spent there or in the immediate vicinity. He kept up his friendship with his early comrades and he wrote later, "My best friend, the only one admitted to my youthful *penetralia*, was Robert

E. Lee, Jr., son of the famous Confederate general, who, from 1852 to 1855, was superintendent on the Post." He had many warm friends among the members of the New England Botanical Club of which he was a non-resident member, and he attended a number of its meetings in the earlier years of its life before his physical troubles increased.

In 1906 Bailey's failing health compelled his resignation from his college work. He was honored with the title of Professor Emeritus, and during the remainder of his life he lived quietly at home, devoting much of his time to reading and writing. But his ever increasing physical troubles wore heavily upon him and at last, on February 20, 1914, he died. The funeral was held at the family home in Providence on February 23. At his own request his coffin was draped with the American flag, and the authorities at West Point allowed his body to be laid to rest in the Academy grounds near that of his father.

On March 14, 1881, Professor Bailey was married to Eliza Randall Simmons of Providence. She and two children, Whitman and Margaret Emerson, survive him.

Cambridge, Massachusetts.

OPUNTIA VULGARIS ON CAPE COD.

F. S. Collins.

The occurrence of *Opuntia vulgaris* Mill. at Nantucket has long been a matter of record; it is common there on the peninsula of Coatue. The earliest record appears to be by Hitchcock in 1833.[1] "Cactus Opuntia, Nantucket, T. A. Green. *Prickly Pear.*" It does not appear in the first and second editions of Bigelow's Florula, but is mentioned in the third edition.[2] "Found at Nantucket, June, July."

In the first edition of Gray's Manual, 1848, p. 141, the distribution is given as "Sandy fields and dry rocks, Nantucket to N. J. and southward near the coast." Later editions have practically the same. In

[1] Edward Hitchcock, Report on the Geology, Mineralogy, Botany and Zoology of Massachusetts, p. 605.

[2] Jacob Bigelow, Florula Bostoniensis, third ed., 1840, p. 203.

the various editions of Britton's Manual and Britton and Brown's Flora, the range is given as "Eastern Mass. to Penn. & Fla." From a purely geographical point of view, "Eastern Mass." is correct for Nantucket, though possibly misleading as implying a wider range. I have been unable, however, to find any Massachusetts station recorded outside of Nantucket.

On October first, 1913, I was making my last collecting trip of the season, in Wellfleet, Massachusetts, and I came upon a large colony of the *Opuntia*, thoroughly established. It was about a mile from the settled part of the town, and grew on both sides of the road for two hundred feet or more, extending back into the fields. The plants were nearly prostrate, merely projecting slightly; the flowering season was past, but there was abundance of the fruit, sometimes as many as five fruits on a single segment. It appeared to occupy the ground so thoroughly that no other vegetation but a scanty growth of grass was found among it. The fruit, though well formed and containing hard seeds, was only about half the size of what I had seen on plants of the same species in Bermuda, two months before.

There was a "No Trespass" sign near by; usually a botanist pays no attention to such signs, but in this case it had some interest, as it gave the name of the owner of the property, George W. Lawrence, and I wrote to Mr. Lawrence, asking for information in regard to the plant. He very kindly replied as follows: — "I have consulted an old lady (87 years of age) who used to live in the old Hickman house, as we call it, when she was a girl, and she says, the prickly pear cactus was there at that time; she does not know where it might have come from. I have owned the place since Nov. 1908, and the man I bought it of has just died. The 'No Trespass' sign was to keep the boys away from the fruit. An old gentleman (79) a native, says it was there when he was a small boy. The old Hickman family used to have beautiful flowers, so my wife says, and she used to visit at the old house when she was very young. Probably the plant was brought there sometime, as it is not found anywhere else in town." [1]

I referred to my discovery at a meeting of the New England Botanical Club, in the hope of hearing of other stations, and was again fortunate, for Mr. C. F. Batchelder remembered having seen it, and at my request he notes the following particulars: — "In September, 1876, I

[1] Later Mr. Lawrence wrote me "Mr. Nye, our postmaster, tells me there is another little patch of the 'cactus' up by Higgins Pond, about two miles from my place."

found a small *Opuntia* (doubtless *O. vulgaris*) growing at the head of a sand beach near Osterville, in the township of Barnstable, on the south side of Cape Cod. According to my recollection, there was no single large colony, but small plants grew scatteringly along the beach; whether or not it was widely distributed along the coast, I cannot say."

With a view of ascertaining whether the plant persisted, I wrote to Mrs. Margaret M. Theodore of Centreville, who is familiar with the flora of that region, and she writes, "I have looked through Mrs. Cheney's 'Plants from Cape Cod' hoping to be able to locate your Prickly Pear exactly in it, as she made exhaustive examinations of this region, but do not find it in the list. Then comes my young naturalist, my boy John, to the rescue.— 'Sure I know where to find it. There's two or three lots of it around here,' and he describes it accurately." Osterville and Centerville are settlements in the town of Barnstable, about a mile apart.

Mr. W. P. Rich tells me that it grows in Truro, on the grounds of Mr. Solomon Ryder, who has lived there for over 40 years, and who reports that it was there when he came. It now extends from the house over the lawn, into fields and under trees in every direction. In 1911 Mr. Rich transplanted a number of these plants from Mr. Ryder's place to a barren "sand lot" near the shore by his summer home at Truro; they thrived and are spreading, and flowered freely in 1912 and 1913.

The Truro station is the northernmost; from there to Wellfleet is five miles, from Wellfleet to Barnstable 25 miles. It seems now safe to consider *Opuntia vulgaris* as fairly established on the Cape; as to whether it is native may not be as clear. Mr. Rich is of the opinion that the plant was introduced at the Ryder station; the Lawrence station at Wellfleet, though it has a record of at least 75 years, appears to have an old farm house as its center of distribution. The Barnstable localities more resemble the Coatue station at Nantucket, which has always been considered as free from suspicion of human agency. It is not uncommon in gardens at Nantucket, transplanted from Coatue, and it may well be that old time captains from Truro and Wellfleet brought it to their gardens in the same way. Its present distribution seems to be much the same as that of other species which inhabit the coastal plain. It is common along the coast of New Jersey; five stations are recorded for Long Island, New York.[1] In Connecti-

[1] Smith Ely Jelliffe, The Flora of Long Island, 1899, p. 118.

cut the record is[1] "Exposed rocks and sandy soils, occasional along the coast, rare inland." Possibly other stations similar to those in Barnstable may be discovered, now that there is reason to look for them; in any case, it is now a part of the Cape flora.

We are accustomed to think of *Opuntia* as a subtropical genus, but while looking up references for this note I came across some information quite to the contrary as regards some species; it may be new to others, as it was to me. In the copy of the first edition of the Manual, at the Gray Herbarium, is a note against *Opuntia vulgaris*, in Dr. Gray's handwriting, "Grows N. on rocks to lat 50°. Dr. Richardson." The Richardson seems to be Sir John Richardson,[2] who says, "Cacti are numerous on the eastern side of the mountains in the same parallel; and the smaller kinds, chiefly *Opuntiae*, range northwards over prairies to the 49th parallel, and perhaps further north. We gathered *Opuntia glomerata* or the *Crapaud vert* of the voyagers, on the Lake of the Woods." A still more northern range is shown by Macoun[3] "*O. Missouriensis* DC., Prickly Pear. We refer all our eastern forms to this species, but without being certain, as specimens have seldom been preserved. The Qu'Appelle valley, about two miles from its mouth, and the north bank of the Assiniboine, above Shell River, are the most eastern localities known. It is found at Moose Jaw Creek and at the elbow of the South Saskatchewan, and thence south and west to Long. 112° at the Hand Hills. A species which I believe to be the same, reappears again at the north bank of Peace River, Lat. 56° 12′, where it grows on the arid clay slope, exposed often to a temperature of 55° below zero."

NORTH EASTHAM, MASSACHUSETTS.

[1] Catalogue of the Flowering Plants and Ferns of Connecticut, 1910, p. 289.
[2] Arctic Searching Expedition, New York, 1852, p. 418.
[3] John Macoun, Catalogue of Canadian Plants, Vol. I, 1883, p. 177.

THE DISCOVERY OF THE LONG-SOUGHT ALGA, STICTYOSIPHON TORTILIS.

R. E. Schuh.

In his treatise on the Marine Algae of New England (Rept. of the U. S. Commission of Fish and Fisheries for 1879) Dr. Farlow expressed surprise that *Phloeospora* (*Stictyosiphon*) *tortilis* (Rupr.) Aresch. had not yet been found along our coast. It is frequent along the British coast, in the Baltic Sea and Arctic Ocean, along Spitzbergen and Greenland, and even in Bering Strait and the Okhotsk Sea. It is now my pleasure to report undoubted specimens of this widely distributed form from our northeastern coast. It is the habit of the plant to break up, thus reproducing vegetatively; and so it happens that, for many years, only occasional bits and imperfect specimens had been found both in Massachusetts and Rhode Island waters. Indeed, one from the latter state received the critical approval of Mr. Frank S. Collins, who has also very kindly examined the specimens referred to in this note.

Recently, while sorting some material from Vineyard Sound, collected October 12th, 1895, I found splendidly fruited specimens with the basal rhizoids still intact. They grew in company with *Ectocarpus siliculosus* and *Desmotrichum*, and apparently had been attached to decayed bits of *Chorda*. A slide is deposited in the herbarium of the New England Botanical Club. Illustrations may be found in various standard foreign works on brown algae.

Washington, D. C.

REPORTS ON THE FLORA OF THE BOSTON DISTRICT,—XIX.

SALICACEAE.

POPULUS.

P. ALBA L. Roadsides and waste land; escaping freely wherever planted, especially along the coast.

[*P. balsamifera* L. Cultivated (?), Danvers (*C. E. Faxon,* May 19, 1884).]

P. CANDICANS Ait. Escaping occasionally, wherever planted.

P. DELTOIDES Marsh. Introduced from further west; spontaneous at Lowell, Cambridge and Walpole, perhaps elsewhere.

P. grandidentata Michx. Woods and roadsides, common throughout.

P. NIGRA L., var. ITALICA Du Roi. Occasionally persistent around old places, sometimes escaping.

P. tremuloides Michx. Woods and roadsides, very common throughout.

SALIX.

S. ALBA L. Introduced and escaping at several stations.

S. ALBA L., var. CAERULEA (Sm.) Koch. Sparingly escaped in Middlesex Fells, Boston and Wellesley.

S. ALBA L., var. VITELLINA (L.) Koch. Often planted, and thoroughly established, spreading in moist soil; pistillate trees very rare.

S. AURITA L. Waste ground off Ipswich St., Back Bay, Boston (*F. F. Forbes,* 1905). Native of Europe and northern Asia.

S. BABYLONICA L. Waste places, sparingly escaped around Boston.

S. candida Flügge. Abundant in a swamp near Crooked Pond, Boxford. First found by J. Robinson in 1875. One of several rare plants growing in this isolated limestone area.

S. cordata Muhl. Thickets and swamps, common throughout.

S. cordata Muhl., var. **angustata** (Pursh) Anders. Ice railway, Cambridge (*Wm. Boott,* May 18 and June 13, 1854); wet bank, W. Cambridge (*M. L. Fernald,* no date).

S. cordata Muhl., var. **myricoides** (Muhl.) Carey. Wet ground, Blue Hills, W. Quincy (*J. R. Churchill*, Apr. 25 and June 21, 1891); Milton (*J. R. Churchill*, April, May and June, 1891).

S. discolor Muhl. Swamps and roadside thickets, generally distributed throughout.

S. discolor Muhl., var. **eriocephala** (Michx.) Anders. Waltham (Gray Herb., no date); Roxbury (*J. A. Lowell*, 1849); Framingham (*E. C. Smith*, May 9, 1899).

S. discolor Muhl., var. **prinoides** (Pursh) Anders. Cordaville Road, Framingham (*E. C. Smith*, May 15, 1899); swamp, Blue Hills, W. Quincy (*J. R. Churchill*, Apr. 25, May 10 and June 21, 1891).

S. FRAGILIS L. Recorded as introduced at several stations, but apparently not evenly distributed.

S. humilis Marsh. Sand-plains and dry soil; common, especially southward.

S. lucida Muhl. Swamps and wet places; frequent, especially northward.

S. nigra Marsh. Shores of streams and ponds, frequent.

S. nigra Marsh., var. **falcata** (Pursh) Torr. Occasional.

S. NIGRICANS Sm. Waste ground off Ipswich St., Back Bay, Boston (*F. F. Forbes*, 1907). Native of Europe and northern Asia.

S. pedicellaris Pursh, var. **hypoglauca** Fernald. Peatbogs and swamps in central and northern portions; frequent. First published in RHODORA xi. 161, 1909.

Salix pedicellaris Pursh, var. **tenuescens** Fernald. Meadows of Concord River, Bedford (*M. L. Fernald*, May 23, 1909). Type station. Published in RHODORA xi. 162, 1909.

S. PENTANDRA L. Pond shores and roadsides; Wayland, Weston, Wellesley, Brookline.

S. petiolaris Sm. Swamps and wet places, frequent.

S. PURPUREA L. Wet places, occasional.

S. rostrata Richards. Swamps and thickets, common.

S. sericea Marsh. Swamps, frequent.

S. subsericea (Anders.) Schneider. (See RHODORA xi. 9–12, 1909.) Low grounds; Arlington, Cambridge, Brookline, Dedham, Wayland, Sudbury.

S. tristis Ait. Sand-plains and dry places, common throughout.

S. VIMINALIS L. Introduced and established at Medford, Cambridge, Roxbury, Brookline, Dorchester. See Robinson, Fl. Essex Co., 99, 1880.

HYBRIDS.

S. ALBA L. × FRAGILIS L. A large staminate tree, persisting since before 1859, Cambridge (*W. Deane*); pistillate tree, Cambridge (*L. H. Bailey*, May, 1883); a large staminate tree, Dorchester (*J. R. Churchill*, 1887–8).

S. CINEREA L. × **cordata** Muhl. Waste ground, Back Bay, Boston (*F. F. Forbes*, 1907).

S. cordata Muhl. × **lucida** Muhl. Knoll by Brookline waterworks land, Dedham (*F. F. Forbes*, 1908).

S. cordata Muhl. × **pedicellaris** Pursh., var. **hypoglauca** Fernald. Wet soil; Concord, Wayland, W. Roxbury, Dedham.

S. cordata Muhl. × **petiolaris** Sm. Swamps; North Andover, Cambridge, Boston, Brookline, W. Roxbury, Dedham, W. Quincy, Sherborn.

S. cordata Muhl. × **rostrata** Richards. Reservoir lot, Brookline (*F. F. Forbes*, 1909); border of swamp, Charles River meadow, Dedham (*F. F. Forbes*, 1908).

S. cordata Muhl. × **sericea** Marsh. Cambridge, W. Roxbury, Milton, W. Quincy, Sharon, Sherborn.

S. cordata Muhl. × **subsericea** (Anders.) Schneider. Cambridge (*L. H. Bailey*, 1884); border of swamp, Cow Island, W. Roxbury (*F. F. Forbes*, 1907 et seq.).

S. discolor Muhl. × **humilis** Marsh. Brookline, W. Roxbury, Wellesley, Natick; Middlesex Fells, according to Deane, Fl. Metrop. Park Res., 76, 1896.

[Mr. F. F. Forbes has found in moist land at W. Roxbury a specimen which he pronounces the above hybrid re-crossed with *S. discolor*, also a specimen re-crossed with *S. humilis*.]

S. discolor Muhl. × **rostrata** Richards. Wet ground near Hammond's Pond, Newton (*F. F. Forbes*, May 12 and Aug. 18, 1908); W. Roxbury (*F. F. Forbes*, May 10 and Aug. 10, 1908).

S. humilis Marsh. × **petiolaris** Sm. Roadside, Boxford (*F. F. Forbes*, May 30, 1909).

S. humilis Marsh. × **rostrata** Richards. Dry ground, Natick (*F. F. Forbes*, 1908).

S. humilis Marsh. × **sericea** Marsh. Dry soil, Natick (*F. F. Forbes*, 1908).

S. humilis Marsh. × **tristis** Ait. Dry sandy soil, Natick (*F. F. Forbes*, 1908).

S. petiolaris Sm. × **rostrata** Richards. Swamp, Cow Island, W. Roxbury (*F. F. Forbes*, 1908).

S. petiolaris Sm. × **sericea** Marsh. Swamp, Wayland (*F. F. Forbes*, 1912); wet ground, Sherborn (*F. F. Forbes*, May 21, 1907).

S. petiolaris Sm. × **subsericea** (Anders.) Schneider. Cow Island, W. Roxbury (*F. F. Forbes*, 1909).

S. petiolaris Sm. × **tristis** Ait. Dry sandy soil, Natick (*F. F. Forbes*, 1907).

The older specimens listed above have all been passed upon by the late M. S. Bebb, our best American student of *Salix*. The hybrids found by Mr. Forbes have in most cases been transplanted by him to his willow garden, where they are still under his observation and may be seen by others.

MYRICACEAE.

MYRICA.

M. asplenifolia L. Dry barren soil, very common throughout.

M. carolinensis Mill. Dry sandy soil; very common along the coast, becoming less abundant inland.

M. Gale L. Swamps, frequent throughout.

JUGLANDACEAE.

CARYA.

C. alba (L.) K. Koch (not *C. alba* Nutt.). Dry open woods; common in southern and central portions; reported as far north as Danvers and Essex.

C. cordiformis (Wang.) K. Koch. Dry soil, well distributed except in west and northwest, but seldom abundant.

C. glabra (Mill.) Spach. Dry rocky soil; common.

C. microcarpa Nutt. (in part). Waverley, Belmont (*B. L. Robinson*, June 2, 1895); Dorchester (*W. Deane*, Sept. 21, 1887). Mr. C. E. Faxon writes that there are specimens at the Arnold Arboretum, collected by himself, from Reading, Wellesley Hills, Lexing-

ton and Jamaica Plain. He says, "It is the common round pignut with sweet meat and grows everywhere around Boston, as I understand it."

In Trees and Shrubs by C. S. Sargent, Vol. II, Part IV, page 208, August, 1913, is the following note, "CARYA OVALIS, var. OBCORDATA, *n. var.* .... *Carya microcarpa*, Nuttall, *Gen.* ii. 221 (in part) (1818). .... This is the most widely and probably the most generally distributed variety. It is common in southern New England .... The fruit varies from subglobose to short oblong or to slightly obovate .... The nut is usually much compressed, often broadest above the middle, slightly angled sometimes to below the middle, rounded at the base and rounded and often more or less obcordate at the apex."

C. ovata (Mill.) K. Koch (*C. alba* Nutt). Dry open woods, common throughout.

In the paper cited above, on page 207, Prof. Sargent publishes the following variety, "CARYA OVATA, var. NUTTALLII, n. var. *Carya microcarpa*, Nuttall, *Silva N. Am.* i. 39, t. 13 (not *Carya microcarpa*, Nuttall, *Gen.* ii. 221) (1842)....

"The nut of this variety is rounded, obcordate or rarely pointed at the apex, rounded or abruptly pointed at the base, much compressed, prominently angled.... Except in the size of the fruit there appear to be no characters by which this variety can be distinguished from the common Shagbark. I have seen specimens of the variety from eastern Massachusetts...."

Swampscott (*J. G. Jack*, September, 1894).

JUGLANS.

J. cinerea L. Roadsides and open woods; common in north and central sections, but not reported from extreme south.

BETULACEAE.

ALNUS.

A. incana (L.) Moench. Borders of streams and swamps; Sharon, Canton and Hingham northward.

A. rugosa Du Roi. Swamps and borders of streams; very common southward, less common northward.

A. VULGARIS Hill. Swamps and moist soil, at W. Medford and Waltham; edge of saltmarsh at Brookline and Hingham.

BETULA.

B. alba L., var. **papyrifera** (Marsh.) Spach. Dry woods, scattered trees as far south as Sharon, Hingham and Scituate.

B. lenta L. Rich woods, frequent except in southeastern portion, where it has not been reported.

B. lutea Michx. f. Rich moist woods; occasional in Essex and Middlesex counties, with scattered trees as far south as Canton and Scituate.

B. nigra L. Moist banks of Merrimac River and lower portions of its tributaries from Amesbury west to Tyngsboro and Dracut and across the state-line to Pelham, N. H.; also near Parker River in Georgetown and Byfield [Newbury], and at Ipswich. A few trees in a dry pasture at Groton (C. H. Knowlton, RHODORA xiv. 235, 1912) are probably introduced. There are no other stations for this species nearer than Suffolk Co., Long Island, 115 miles to the southwest.

B. populifolia Marsh. Dry sandy soil, abundant everywhere.

CARPINUS.

C. caroliniana Walt. Wet soil and borders of streams in central and northern portions; not reported from southern third of district.

CORYLUS.

C. americana Walt. Dry soil; common throughout.

C. rostrata Ait. Generally distributed in dry soil, but not abundant.

OSTRYA.

O. virginiana (Mill.) K. Koch. Dry rocky woods, frequent.

FAGACEAE.

CASTANEA.

C. dentata (Marsh.) Borkh. Woods and pastures; abundant in many places in western and central portions, much less common near the coast and to the southward.

C. pumila (L.) Mill. Two clumps in a dry thicket, Stony Brook Reservation, W. Roxbury. See E. F. Williams, in Rhodora xiii. 90, 1911. The only New England station.

FAGUS.

F. grandifolia Ehrh. Rich woods, occasional throughout. There are considerable areas covered densely with it on Cape Ann and at Beechwood, Cohasset, but trees are usually scattering.

F. grandifolia Ehrh., forma **pubescens** Fernald & Rehder. South Braintree (*A. Rehder*, May 30, 1907). See Rhodora ix. 111–112, 1907.

QUERCUS.

Q. alba L. Dry woods; one of our commonest trees. The largest and best preserved specimens are in Beaver Brook Reservation, Waverley. See Deane, Fl. Metrop. Park Res. 73, 1896.

Q. bicolor Willd. Swamps and low ground; common throughout. One very large tree at Waverley. See Deane, Fl. Metrop. Park Res. 74, 1896.

Q. coccinea Muench. Dry soil; frequent throughout.

Q. ilicifolia Wang. Dry barren soil; very common throughout.

Q. imbricaria Michx. A single tree 4 feet 3 inches in girth at 3 feet up; two feet inside the wall of an old pasture, Brush Hill Road, Milton (*G. G. Kennedy*, Oct. 21, 1900; May 16 and May 22, 1902). See Rhodora xiv. 34, 1912.

[*Q. palustris* Muench. Large tree on Beane estate, Ipswich, in field on the back street (*J. Robinson*, Oct. 13, 1891). Spec. in herb. Peabody Acad. Sci. Probably set out, as elsewhere in district.]

Q. prinoides Willd. Dry soil, frequent throughout.

Q. Prinus L. Rich woods; local in Essex and Middlesex counties and in the Blue Hill region.

Q. Robur L. Roadside near Sunset Rock, Andover (*A. S. Pease*, Sept. 21, 1903); W. Medford (*C. H. Morss*, October, 1898); thoroughly established and spreading in dry woods, Duxbury (*C. H. Knowlton*, Sept. 24, 1911. See Rhodora xiv. 20, 90, 1912); Salem, according to Robinson, Fl. Essex Co. 97, 1880.

Q. rubra L. Woods, rather common.

Q. velutina Lam. Dry woods, common throughout.

HYBRIDS.

Q. alba L. × **bicolor** Willd. A natural tree growing in Franklin Park, Roxbury (*J. G. Jack*, 1895–1904).

Q. alba L. × **Prinus** L. A non-fruiting tree grows in Concord on the estate of Wm. Brewster, in the edge of woods by a wet run. This tree Mr. A. Rehder tentatively pronounces to be the above hybrid, but fruit is needed for absolute determination.

Q. ilicifolia Wang. × **velutina** Lam. Top of Blue Hill (*A. Rehder*, September, 1900). See Rhodora iii. 137, 1901.

C. H. Knowlton, Walter Deane } *Committee on Local Flora.*

THE ORIGINAL FLORA OF THE OLD COLONY.

Clarence H. Knowlton.

Thoreau's frequent quotations in "Cape Cod," have led me to the book called "Mourt's Relation," a diary of early events in Plymouth colony, probably written by William Bradford and Edward Winslow. The floral notes seem to me more likely from Winslow's pen, for Bradford's own history scarcely mentions a plant, while Winslow on his trip to see Massasoit, and in a letter home to England, writes rather fully of what grew in the new country. The book is well worth reading, for about it still lingers "the charm of Sixteenth Century prose," and the events of the early years at Plymouth are exceedingly interesting. It was published in London in 1622, and there have been several reprints. It has seemed worth while to me to collate the notes on the flora of southeastern Massachusetts for the benefit of Rhodora readers.

"Upon the 9th of November following, by break of the day, we espied land, which we deemed to be Cape Cod, and so afterward it proved. And the appearance of it much comforted us, especially seeing so goodly a land and wooded to the brink of the sea. . . . And upon the 11th of November we came to an anchor in the bay [Province-

town harbor], which is a good harbour and pleasant bay, circled round, except in the entrance, which is about four miles over from land to land, compassed about to the very sea with oaks, pines, juniper, sassafras, and other sweet wood.....The same day, so soon as we could, we set ashore fifteen or sixteen men, well armed, with some to fetch wood, for we had none left, as also to see what the land was..... They found it to be a small neck of land [Long Point]; on this side where we lay, is the bay, and the further side the sea; the ground or earth sand hills, much like the downs in Holland, but much better; the crust of the earth, a spit's depth, excellent black earth; all wooded with oaks, pines, sassafras, juniper, birch, holly, vines, some ash, walnut; the wood for the most part open and without underwood, fit either to go or ride in. At night our people returned, but found not any person, nor habitation; and laded their boat with juniper, which smelled very sweet and strong, and of which we burnt the most part of the time we lay there."

On the 15th another party was set ashore and proceeded about ten miles. The next morning, in Truro, "we marched through boughs and bushes, and under hills and valleys, which tore our very armor in pieces.....About ten o'clock we came into a deep valley, full of brush, wood-gaile and long grass.....And as we went in another valley, we found a fine clear pond of fresh water, being about a musket shot broad, and twice as long. There grew also many small vines, and fowl and deer haunted there. There grew much sassafras.....We went on further and found new stubble, of which they had gotten corn this year, and many walnut trees full of nuts, and great store of strawberries, and some vines." Further on they came to some deserted Indian houses, in which they found "two or three baskets full of parched acorns....We found also a little silk grass, and a little tobacco seed, with some other seeds which we knew not. Without was sundry bundles of flags, and sedge, bulrushes, and other stuff to make mats."

There are no further botanical notes until Plymouth harbor was reached, on Dec. 16. "This harbour is a bay greater than Cape Cod, compassed with a goodly land; and in the bay two fine islands, uninhabited, wherein are nothing but woods, oaks, pines, walnuts, beech, sassafras, vines and other trees which we know not..... Monday, the 18th day, we made a land, manned with the master of the ship and three or four of the sailors. We marched along the coast

in the woods some seven or eight miles.....The land for the crust of the earth is a spit's depth, excellent black mould, and fat in some places; two or three great oaks, but not very thick, pines, walnuts, beech, ash, birch, hazel, holly, asp, sassafras in abundance, and vines everywhere, cherry trees, plum trees, and many others which we know not. Many kinds of herbs we found here in winter, as strawberry leaves innumerable, sorrel, yarrow, carvel, brooklime, liverwort, water-cresses, great store of leeks and onions, and an excellent strong kind of hemp."

A year later Edward Winslow, writing enthusiastically to a friend in England under date of Dec. 11, 1621, writes the following: "All the spring-time the earth sendeth forth naturally very good sallet herbs. Here are grapes, white and red, and very sweet and strong also; strawberries, gooseberries, raspas, etc.; plums of three sorts, white, black and red, being almost as good as a damson; abundance of roses, white, red and damask; single, but very sweet indeed."

In July, 1621, Edward Winslow and Stephen Hopkins set out to spend July 4th and 5th with their Indian friend, Massasoit, at Packanokick. They went through Namaschet [Middleboro] to the Taunton River, and down its shores. "As we passed along, we observed that there were few places by the river but had been inhabited; by reason whereof much ground was clear, save of weeds, which grew higher than our heads. There is much good timber, both oak, walnut tree, fir, beech, and exceeding great chestnut trees."

Other passages later on refer to "ground-nuts" as a source of food-supply for the Indians, and in times of shortage, for the colonists themselves.

I shall let each reader supply for himself the modern names for these pre-Linnaean plants, but it is of interest here to read Thoreau's remarks in Cape Cod, and an article by S. B. Parish in Rhodora III, 17, "The Vegetation of Plymouth Three Hundred Years Ago."

In Rhodora IV, 81, Mr. John Robinson has commented on some of these Plymouth plants. He also quotes from a correspondent who suggests that this list was copied from Francis Higginson [Higgeson] who published a similar list of plants of New England.

This cannot be so, however, for Mourt's Relation was written from day to day as the events took place, and was *printed* in its present form in 1622 several years before Higginson left England for this country. It is a pleasure to clear these old worthies of the alleged

plagiarism. There is no reason to suppose that the two lists were not prepared independently, and the Plymouth list must have been.

Hingham, Massachusetts.

The narrow-leaved Variety of Salix pyrifolia.— In one of his discussions of *Salix balsamifera* Barratt, the late M. S. Bebb set off some leaf-extremes as varieties (Bull. Torr. Bot. Cl. xv. 124). With the exception of one, his var. *lanceolata*, they have not seemed to the writer worthy separate designation; but the var. *lanceolata* is found in some of the swamps of eastern Newfoundland to be so uniform and to occur in such extensive areas that it seems well worth recognition. But, unfortunately, the highly appropriate and long-used name, *S. balsamifera* Barratt, was published as a specific name merely in synonymy and was not validated as a specific name until 1879, when Bebb brought it forward (Bot. Gaz. iv. 190). In the meantime *S. pyrifolia* Andersson was properly published (Vet. Acad. Handl. Stockh. vi. no. 1, 162) in 1867 and as the first valid specific name must stand. The narrow-leaved shrub should, therefore, be called

Salix pyrifolia Anderss., var. **lanceolata** (Bebb) n. comb. *S. balsamifera*, var. *lanceolata* Bebb, Bull. Torr. Bot. Cl. xv. t. 81, fig. 7 (1888).— M. L. Fernald, Gray Herbarium.

Vol. 16, no. 185, including pages 81 to 96, was issued 11 May, 1914.

WHAT PROFESSOR BESSEY SAYS OF

John G. Coulter's Plant Life and Plant Uses

"Looking through the book, one is struck by a freshness of statement, showing that the author feels that he has a message for the high-school pupils of the country, and this continues with unabated enthusiasm from the first paragraph of the introduction to the closing paragraph of the book. It should do much to place high-school botany in this country upon a higher plane than it has ordinarily attained."

COULTER'S PLANT LIFE AND PLANT USES

BY JOHN G. COULTER, PH. D.

An Elementary Textbook: Foundational to Agriculture, Domestic Science, or College Botany

PRICE, $1.20

MAY WE SEND YOU FURTHER INFORMATION ON THIS NOTEWORTHY BOOK

AMERICAN BOOK COMPANY

NEW YORK CINCINNATI CHICAGO

HOME GROWN LILIES.

Fresh from Beds. Wild Flowers, Hardy plants of all kinds.

Send for catalogue

F. H. HORSFORD, Charlotte, Vt.

BOTANY LABELS 85c. PER 1000

POSTPAID

Also, printed envelopes, letterheads and statements
$1.00 per 1000 plus stock

For samples write to D. LEWIS DUTTON, Brandon, Vermont

CAMBRIDGE BOTANICAL SUPPLY COMPANY,

WAVERLEY, MASS.

BOTANICAL SUPPLIES OF EVERY DESCRIPTION.
Samples of Driers and Mounting Papers sent on request.
ASK FOR NEW CATALOG, NO. 91.

Standard Material. Immediate Shipment.